# Space Weaponization Good/Bad

[\*\*\*Space Weaponization Good\*\*\* 2](#_Toc297733366)

[Space Weaponization Good – Hegemony 1/2 3](#_Toc297733367)

[Space Weaponization Good – Economy 5](#_Toc297733368)

[Space Weaponization Good – China 6](#_Toc297733369)

[A2: Arms Race 1/2 7](#_Toc297733370)

[A2: Accidental Launch 1/2 9](#_Toc297733371)

[A2: Debris 11](#_Toc297733372)

[Brilliant Pebbles Good 12](#_Toc297733373)

[Space-based Lasers Good 13](#_Toc297733374)

[Microsatellites Good 14](#_Toc297733375)

[Microwave Weapons Good 15](#_Toc297733376)

[\*\*\*Space Weaponization Bad\*\*\* 16](#_Toc297733377)

[Space Weaponization Bad – Arms Race 1/3 17](#_Toc297733378)

[Space Weaponization Bad – China 20](#_Toc297733379)

[1NC Accidental Launch 23](#_Toc297733380)

[1NC Debris 1/2 24](#_Toc297733381)

[A2: Hegemony 1/3 26](#_Toc297733382)

[A2: Economy 1/2 29](#_Toc297733383)

[ASATs Bad 31](#_Toc297733384)

[Space-based Lasers Bad 32](#_Toc297733385)

# \*\*\*Space Weaponization Good\*\*\*

## Space Weaponization Good – Hegemony 1/2

### Space weaponization is key to hegemony- we must seize space before others

National Review 7-15-2K2 (“Our 'Next Manifest Destiny': America should move to control space -- now, and decisively,” Volume LIV, Number 13)

These are all examples of "force enhancement," to use Pentagon parlance. By generating and channeling information, space-based assets help earthbound soldiers, sailors, and pilots improve their performance. Yet the United States will also need tools of "force application" -- weapons that act against adversaries directly in and from space, for both offensive and defensive purposes. What our country requires, in short, is the weaponization of outer space. This already would have occurred in at least limited form, but for the mulish opposition of arms-control liberals. Reagan's SDI routinely struggled for funding in the 1980s and early 1990s, and then went on life support during the Clinton administration. The budget for ground-based ABMs was slashed by nearly 80 percent in Clinton's first year -- defense contractors even had their system-development bids returned to them unopened. The Brilliant Pebbles program, an outgrowth of SDI that would have placed a swarm of maneuverable interceptors in orbit, was eliminated completely. "These actions effectively destroyed the nation's space-based missile-defense options for the following decade," says Henry Cooper, who ran the Strategic Defense Initiative Organization at the Pentagon during the first Bush administration. The budgets of other programs, such as the ASAT technology tested by Pearson in 1985, were essentially trimmed to death. In 1990, Democrats in Congress forbade ASAT laser testing (the Republican majority let the ban lapse in 1995). The Army worked on ground-based ASAT missiles through the 1990s, and by 1997 its tests were starting to show real promise. The next year, however, Clinton had a test of his own to run -- the line-item veto, since ruled unconstitutional by the Supreme Court -- and he used it against the Army program. "We could have had something online," says Steven Lambakis of the National Institute for Public Policy. "Now we'd be forced to cobble together an emergency response if we really needed to knock out a satellite." The United States soon will have at least a residual ASAT capability -- any national missile-defense system that can shoot down ICBMs also can obliterate satellites. What we don't have, however, is a growing architecture of space-based weapons along the lines of what Reagan began to describe in his visionary SDI speech in 1983. This May, Senate Democrats passed big cuts to ground-based missile defense, which is humdrum compared with space-based lasers and the like -- and the White House has not yet beaten back even this challenge. The wrangling over weapons and budgets stems from a fundamental confusion over what space is and how we should use it. From the standpoint of physics, space begins about 60 miles above sea level, which is roughly the minimum height a satellite must attain to achieve orbit. In this sense, space is just another medium, much like land, water, and air, with its own special rules of operation. For military purposes, however, space is more: It's the ultimate high ground, a flank from above whose importance, for those able to gain access to it, may represent the critical difference in future conflicts. For arms-control fanatics, however, space is a kind of sanctuary, and putting weapons in it poses an unconscionable threat. U.N. secretary general Kofi Annan has called for ensuring "that outer space remains weapons-free." Theresa Hitchens of the Center for Defense Information warns of threats to "global stability" and "the potential for starting a damaging and destabilizing space race." With space, there's always the sense that weapons violate some pristine nature. This is clearly one of the sentiments behind the Kucinich bill. Yet it is exactly wrong -- there should be weapons way up there because then there will be fewer of them right down here. Space power is now in its infancy, just as air power was when the First World War erupted in 1914. Back then, military planes initially were used to observe enemy positions. There was an informal camaraderie among pilots; Germans and French would even wave when they flew by each other. Yet it wasn't long before the reality of war took hold and they began shooting. The skies were not to be a safe haven. The lesson for space is that some country inevitably will move to seize control of it, no matter how much money the United States sinks into feel-good projects like the International Space Station. Americans have been caught napping before, as when the Soviet Union shocked the world with Sputnik in 1957. In truth, the United States could have beaten the Soviets to space but for a deliberate slow-down strategy that was meant to foster sunny relations with the world's other superpower. The United States is the world's frontrunner in space, with about 110 military satellites in operation, compared with about 40 for Russia and 20 for the rest of the world. Yet a leadership role in space is not the same as dominance, and the United States today lacks the ability to defend its assets against rudimentary ASAT technology or to deny other countries their own weapons in space. No country appears to be particularly close to putting weapons in orbit, though the Chinese are expected to launch their first astronaut in the next year or two and they're working hard to upgrade their military space capabilities. "It would be a mistake to underestimate the rapidity with which other states are beginning to use space-based systems to enhance their security," says the just-released annual report of the Stockholm International Peace Research Institute. At a U.N. disarmament conference two years ago, Chinese officials called for a treaty to keep weapons out of space -- a possible sign that what they really want is some time to play catch-up. The private sector also requires a secure space environment. When the Galaxy IV satellite failed in 1998, paging services shut down, affecting an estimated 44 million customers. Banks and credit-card companies also were affected, along with a few television and radio stations. Saddam Hussein may lack the rocket power to lob a nuclear warhead halfway around the world, but he could mount one on top of a Scud and fire it straight upward. A nuclear explosion in low orbit could disable scores of satellites and wreak havoc on modern economies everywhere -- an example of space-age terrorism. Plenty of people inside the government already recognize how much the United States relies on space. There's a U.S. Space Command headquartered in Colorado Springs, and each branch of the military is to some extent involved in space power. In 1999, secretary of defense William Cohen called space power "as important to the nation as land, sea, and air power." His successor, Donald Rumsfeld, chaired a commission on space and national security right before joining the Bush administration. The panel's report, issued last year, warned of a "Space Pearl Harbor" if the country doesn't develop "new military capabilities." While Cohen's rhetoric was fine, his boss, Bill Clinton, didn't seem to agree with it. Rumsfeld is friendly to the notion of space power, but President Bush so far hasn't talked much about it. When Bush gave his missile-defense speech at the National Defense University a year ago, he spoke of land-, sea-, and air-based defenses -- but made no mention of space. "A lot of us noticed that," says one Air Force officer. The Rumsfeld commission also emphasized defense: how to protect American satellites from foreign enemies. It had almost nothing to say about offense: how to use space for projecting American power around the globe. The commission was a creature of consensus, so this does not necessarily represent Rumsfeld's own thinking. And defense certainly is important. Military satellites are tempting targets because they're so crucial to the United States in so many ways. They are protected by their remoteness, but not much else. Their frail bodies and predictable flight paths are a skeet shoot compared with hitting speedy ICBMs, an ability that the United States is just starting to master. They're also vulnerable to jamming and hacking. Hardening their exteriors, providing them with some maneuverability, and having launch-on-demand replacements available are all key ingredients to national security. Yet defense doesn't win wars. In the future, the mere act of protecting these assets won't be enough to preserve American military superiority in space. In addition to an assortment of high-tech hardware, the United States could use an Alfred Thayer Mahan for the 21st century. In 1890, Mahan was a captain in the Navy when the first edition of his book, The Influence of Sea Power on World History, was published. Today it ranks among the classic texts of military theory. Mahan argued that nations achieve greatness only if they dominate the seas and their various geographic "pressure points," holding up the example of the British Royal Navy. One of Mahan's early readers was a young man named Theodore Roosevelt, who began to apply these ideas while working in the Department of the Navy during the 1890s, and later as president. Mahanian principles shook the country loose from its traditional strategy of coastal defense and underwrote a period of national dynamism, which included the annexation of Hawaii, victory in the Spanish-American War, and the construction of the Panama Canal. No writer has clearly become the Mahan of space, though one candidate is Everett C. Dolman, a professor at the Air Force's School of Advanced Airpower Studies, in Alabama. Dolman's new book Astropolitik offers a grand strategy that would have the United States "endeavor at once to seize military control of low-Earth orbit" and impose "a police blockade of all current spaceports, monitoring and controlling all traffic both in and out." Dolman identifies low-Earth orbit as a chokepoint in the sense of Mahan -- anybody who wants access to space must pass through it. "The United States should grab this vital territory now, when there's no real competition for it," Dolman tells me. "Once we're there, we can make sure the entry cost for anybody else wanting to achieve space control is too high. Whoever takes space will dominate Earth."

Space Weaponization Good – Hegemony 2/2

### Military transformations will fail without space weapons- this collapses US leadership and the global economy

Dolman, Associate Professor of Comparative Military Studies @ US Air Force School of Advanced Air and Space Studies, 2006 (Everett, Space News, Op Ed- Dominance In Space)

No nation relies on space for its security more than the United States — none is even close. Both economically and militarily, loss of space capabilities would prove disastrous. America’s economy, and along with it the world’s, would collapse. Its military would hunker down in defensive crouch while it prepared to withdraw from dozens of then-untenable foreign deployments. For these reasons, the United States Air Force is charged with ensuring reliable space access and capabilities in peace, and in defending space assets and operations in conflict. As a martial organization, it looks to military means for achievement of its assigned ends. And so it should. To date the Air Force has been hamstrung in its pursuit of weapons in space by a combination of policy angst over the possible impact on foreign relations, Cold War legal entanglements, and the misapplied logic of nuclear deterrence. Moreover, a sense that the realm of space should somehow be kept pure, free of atavistic human contamination, pervades the opposition. All of these arguments are easily countered and have been refuted at numerous forums. But the core arguments for weapons in space are — or ought to be — centered on two themes. First, the United States is the world’s hegemon, like it or not, and as such it is expected to provide leadership in the world community, provide a globally more-beneficial economy along with reduced incidences and intensity of conflict and war, and to maintain its relative power. Second, the old American way of war, in which problems overseas are ignored until they spill over into direct conflict with its interests, requiring a massive and overwhelming intervention, is gone. The 21st century American military instead relies on high-tech intelligence, global presence, stealth, and precise and deadly engagements that limit collateral damage and casualties. Such is the new reality. Transformation of the armed services has crossed a threshold of no return. Without guaranteed access to space, and the capacity in war for space dominance, the new American way of war is not viable. Consider this analogy. Imagine assigning the U.S. Navy the mission of protecting the nation’s interests at sea — indeed, to ensure that access to the high seas is unhindered, and that those who might contest American access to traditionally and legally open waters are denied the ability to do so — but to accomplish this mission without any capacity to apply violence to, in, or from the sea. The notion is ludicrous, despite the fact that no state today has the capacity to challenge the American Navy at sea, and no nation is developing such a capacity. While there are numerous diplomatic, economic and informational means to accomplish such a task -- and all should be pursued -- these are not within the Navy’s area of expertise, and so it should not receive the mission. The point is simple. The arguments against space weapons should not be centered on the correctness of the Air Force’s desire to pursue technologies that lead to weaponization, but on the propriety of the assignment. It should also be recognized that during the modern era’s most auspicious periods of peace and prosperity, the international community was led by a liberal hegemon, whose military power was globally dominant on the oceans and locally dominant on the ground where it chose to fight. Air and space power — heavily used by today’s Navy — are the prevailing globally dominating military capabilities, enabling local ground power superiority at the time and place of America’s choosing. In preparation for an eventual transformation to a space-heavy military force structure, it is prudent to ask what would such a force look like, and what would be the political ramifications of its deployment? Broadly imagined, any transition to a military that included significant space-based weapons, capable of engaging assets in space and a limited number of high-value, fleeting or heavily protected targets would come at a stiff price. Any envisioned space weapons system would be very, very expensive. The cost would come not from social or educational budgets, but from existing defense allocations. In other words: fewer performance aircraft, fewer naval surface combatants, and fewer troops and armored vehicles — a lot fewer. These conventional systems would still carry the bulk of violence projected abroad for the foreseeable future, but should space weapons be properly designed and judiciously employed to pre-emptively and preventively constrain violent opposition to U.S. security concerns, the need for conventional forces around the globe will be considerably reduced. As such, a space-heavy force structure, while adding to the deadly concentration of power that is implicit in the transformation model, will not be a threat to the security interests of other states in the same manner that an increased conventional force might. The United States will retain the capacity to intervene with violence anywhere in the world, at a moment’s notice, but it will have atrophied its capacity to invade and hold territory. A direct threat to the sovereignty of foreign states will have abated, but not the capacity to retaliate against or punish those states that oppose U.S. interests. For example, the second war in Iraq was won quickly, brilliantly in fact, by a transformed American military with far fewer personnel than could have been imagined just a few years ago. The occupation and democratization of Iraq has not gone well, or at least not as well as anticipated. The smaller, deadlier force that swept through Iraq and toppled a government is poorly constructed to pacify territory, and so clarion calls for more troops are heard daily. But what is more threatening to the many states of this world: a U.S. military force designed to push violence forward quickly, but that cannot sustain long-term, broad-area application of violence, or one that is slower, less-accurate, more broadly devastating, and designed to take and hold territory? If space weapons are used capriciously or arbitrarily, then certainly they will be part of an expensive military build-up that hastens the demise of the United States. But if they are the military foundation of an effort to ensure commercial and peaceful access to space for all nations, as is the current U.S. military dominance on the seas and in the air, then space weaponization may come to be seen as a global public good. Once again, strategy matters. The vision that America has for itself and the world cannot be achieved without dominance in space. Without the capacity to research, develop, test and then, if necessary and efficient, deploy weapons that operate to, in and from space, the lynchpin of military transformation may be lost.

## Space Weaponization Good – Economy

### Attacks on US space assets are inevitable, even without weaponization- we must have the means to repulse them to protect the global economy

Lambeth 2003 (Benjamin S., Mastering the Ultimate High Ground: Next Steps in the Military Uses of Space, Santa Monica: The Rand Corporation, 2003, www.rand.org/publications/MR/MR1649/, acc. 8-7-05)

The most compelling reason for moving forward with dispatch toward acquiring at least the essential elements of a serious space control capability is that the United States is now unprecedentedly invested in and dependent on on-orbit capabilities, both military and commercial. Since these equities can only be expected to grow in sunk cost and importance over time, it is fair to presume that they will eventually be challenged by potential opponents. In 1997, then- CINCSPACE General Howell M. Estes III pointed out that with more than 525 satellites then on orbit (including more than 200 U.S. satellites) and with more than $250 billion likely to be invested by 46 nations in space assets by 2000, space had indisputably become an economic center of gravity and, hence, a major vulnerability of the United States and its allies.4Some have questioned whether this aggregation of assets in space truly constitutes an economic center of gravity, even though there may be a thousand American satellites on orbit within ten years at a half-trillion-dollar investment. These skeptics counter that because satellites involve the movement of information rather than goods, they are not strictly comparable to the commercial ships that were plundered during the bygone era of rampant piracy on the high seas. On this point, it may well be, as Barry Watts has suggested, that we have not yet “found the right metaphors and historical analogies for thinking about the military use of near-earth space.”5 Yet what matters is that those satellites represent a tremendous U.S. dependency. It is thus entirely plausible that as the United States deploys ever more satellites and relies ever more on them for military applications, it will only be a matter of time before our adversaries are tempted to challenge our freedom of operation in space. In the security realm in particular, as two RAND colleagues have pointed out, a prospective opponent “will understandably view any space capability contributing to the opposing military as part of the forces arrayed against it in a theater. When the space capabilities represent an easier target than other critical nodes, we should expect interference with them. The natural consequence of space integration into military activity is a more hostile environment for space.”6

### US space weaponization is needed to create the conditions for space commerce

Dolman, Professor of Comparative Military Studies at the U.S. Air Force School of Advanced Air and Space Studies, 9-14-2K5 (Everett, “ U.S. Military Transformation and Weapons in Space,” For e-parliament conference on Space Security, www.e-parl.net/pages/space\_hearing\_images/ConfPaper%20Dolman%20US%20Military%20Transform%20&%20Space.pdf)

Seizing the initiative and securing low-Earth orbit now, while the US is unchallenged in space, would do much to stabilize the international system and prevent an arms race is space. From low-Earth orbit (LEO), the enhanced ability to deny any attempt by another nation to place military assets in space, or to readily engage and destroy terrestrial ASAT capacity, makes the possibility of large scale space war and or military space races less likely, not more. Why would a state expend the effort to compete in space with a superpower that has the extraordinary advantage of holding securely the highest ground at the top of the gravity well? So long as the controlling state demonstrates a capacity and a will to use force to defend its position, in effect expending a small amount of violence as needed to prevent a greater conflagration in the future, the likelihood of a future war in space is remote. Moreover, if the U.S. were willing to deploy and use a military space force that maintained effective control of space, and did so in a way that was perceived as tough, non-arbitrary, and efficient, such an action would serve to discourage competing states from fielding opposing systems. Should the US use its advantage to police the heavens (assuming the entire cost on its own), and allow unhindered peaceful use of space by any and all nations for economic and scientific development, over time its control of LEO could be viewed as a global asset and a public good. Much in the manner that the British maintained control of the high seas, enforcing international norms of innocent passage and property rights , the US could prepare outer space for a long-overdue burst of economic expansion.

## Space Weaponization Good – China

### Weaponization ends war and terrorism forever- failure cedes global dominance to China

Yoshida, Director of the British Colombia Freedom Institute, Author of The Northern Abyss, Noted Political Commentator, Columnist for the Greenwich Village Gazette, 2003 (Adam, Oct 10th, “Red China Shooting for the Moon”, Freedom Institute Magazine, <http://www.adamyoshida.com/2003_10_01_archive.html> )

Ceding military control of space to China would end Americas status as a Superpower and create an entirely new world order. An American seizure of space would make permanent American hegemony. The development of an advanced system of space-based weapons, along with a powerful support structure, would elevate America from being, by far, the most militarily powerful nation in the history of the world to being, to put it simply, militarily invincible. How do you fight an enemy who can, moments after you attack, zero in on your home and pulverize it with a rock dropped from orbit? How do you fight an enemy whose forces have sophisticated equipment which allows them to track their own position, uncover yours, and call in precise fire upon you? How do you fight an enemy whose bombers can be over your capital minutes after the decision to go to war is taken, who can drop precision weapons on all of your high value targets, and who possesses weapons which will destroy every modern electronic within a radius of miles? The answer is simple: you can’t. Certainly, people would still be capable of launching terrorist attacks on the Earth- but retaliation would be swifter and more brutal. Moreover, under the threat of orbital bombardment, many earth-based polities would have a strong incentive to cease playing games with terrorists. The era of conventional military conflicts on the Earth would, more or less, be over. Once one power has space and is resolved to keep it, no other power will be able to easily break through the bottleneck. Assuming that Americaâ€™s leadership retains its resolve, American domination of space would become a permanent feature of world affairs.

## A2: Arms Race 1/2

### US weaponization now doesn’t cause conflict, it’s just an extension of hegemony- if any other state acts, it’s globally destabilizing

Dolman, Professor of Comparative Military Studies at the U.S. Air Force School of Advanced Air and Space Studies, 9-14-2K5 (Everett, “ U.S. Military Transformation and Weapons in Space,” For e-parliament conference on Space Security, www.e-parl.net/pages/space\_hearing\_images/ConfPaper%20Dolman%20US%20Military%20

Transform%20&%20Space.pdf)

This rationality does not dispute the fact that US deployment of weapons in outer space would represent the addition of a potent new military capacity, one that would assist in extending the current period of American hegemony well into the future. This would clearly be threatening, and America must expect severe condemnation and increased competition in peripheral areas. But such an outcome is less threatening than any other state doing so. Placement of weapons in space by the United States would be perceived correctly as an attempt at continuing American hegemony. Although there is obvious opposition to the current international balance of power, the status quo, there is also a sense that it is at least tolerable to the majority of states. A continuation of it is thus minimally acceptable, even to states working towards its demise. So long as the US does not employ its power arbitrarily, the situation would be bearable initially and grudgingly accepted over time. On the other hand, an attempt by any other state to dominate space would be part of an effort to break the land-sea-air dominance of the United States in preparation for a new international order, with the weaponizing state at the top. The action would be a challenge to the status quo, not a perpetuation of it. Such an event would be disconcerting to nations that accept the current international order (including the venerable institutions of trade, finance, and law that operate within it) and intolerable to the US. As leader of the current system, the US could do no less than engage in a perhaps ruinous space arms race, save graciously decide to step aside.

### Domination of space would ensure hegemony and deter a global arms race

Dolman 2006 [Everett, ‘U.S. Military Transformation and Weapons in Space’, SAIS Review: vol. 26, no. 1; http://muse.jhu.edu/journals/sais\_review/v026/26.1dolman.pdf]

Seizing the initiative and securing low-Earth orbit now, while the United States is unchallenged in space, would do much to stabilize the international system and prevent an arms race in space. The enhanced ability to deny any attempt by another nation to place military assets in space and to readily engage and destroy terrestrial anti-satellite capacity would make the possibility of large-scale space war or military space races less likely, not more. Why would a state expend the effort to compete in space with a superpower that has the extraordinary advantage of holding securely the highest ground at the top of the gravity well? So long as the controlling state demonstrates a capacity and a will to use force to defend its position, in effect expending a small amount of violence as needed to prevent a greater conflagration in the future, the likelihood of a future war in space is remote. Moreover, if the United States were willing to deploy and use a military space force that maintained effective control of space, and did so in a way that was perceived as tough, non-arbitrary, and efficient, such an action would serve to discourage competing states from fielding opposing systems. Should the United States use its advantage to police the heavens and al- low unhindered peaceful use of space by any and all nations for economic and scientific development, over time its control of low-Earth orbit could be viewed as a global asset and a public good. In much the same way the British maintained control of the high seas, enforcing international norms of innocent passage and property rights, the United States could prepare outer space for a long-overdue burst of economic expansion.

A2: Arms Race 2/2

### No risk of crisis instability from space weapons- nations won’t act brashly

Lambakis, Senior Analyst at the National Institute for Public Policy, 2K1 (Steven, “Space Weapons: Refuting the Critics,” Policy Review, February 1, p. 41)

One such assumption is that military developments over the past 50 years have created a security environment in which certain tactical events or localized crises run an unacceptably high risk of triggering a general, possibly even nuclear, war. We are therefore more secure when we do nothing to upset the global military balance, especially in space -- where we station key stabilizing assets. Yet we have little experience in reality to ground this freely wielded and rather academic assumption. By definition, anything that causes instability in armed relationships is to be avoided. But would "shots" in space, any more than shots on the ground, be that cause? When we look at what incites war, history instructs us that what matter most are the character and motivation of the states involved, along with the general balance of power (i.e., are we in the world of 1914, 1945, or 2001?). Fluctuations in national arsenals, be they based on earth or in space, do not determine, but rather more accurately are a reflection of, the course of politics among nations. In other words, it matters not so much that there are nuclear weapons, but rather whether Saddam Hussein or Tony Blair controls them and in what security context. The same may be said for space weapons. The sway of major powers historically has regulated world stability. It follows that influential countries that support the rule of law and the right of all states to use orbits for nonaggressive purposes would help ensure stability in the age of satellites. The world is not more stable, in other words, if countries like the United States, a standard-bearer for such ideas, "do nothing." Washington's deterrence and engagement strategies would assume new dimensions with the added influence of space weapons, the presence of which could help bolster peacemaking diplomacy and prevent aggression on earth or in space. Insofar as we have no experience in space warfare, no cases exist to justify what is in essence a theoretically derived conclusion -- that space combat must be destabilizing. We do know, however, that the causes of war are rarely so uncomplicated. Small events, by themselves, seldom ever explain large-scale events. When ardent Israeli nationalist Ariel Sharon visited this past fall the holy site around the Al Aksa Mosque at Jerusalem's Temple Mount, his arrival fired up a series of riots among impassioned Palestinians and so widened the scale of violence that it kicked up the embers of regional war yet again. Yet the visit itself would have been inconsequential were it not for the inveterate hostility underlying Israeli-Palestinian relations. Likewise, World War I may have symbolically begun with the assassination of Archduke Ferdinand in Sarajevo. Yet a serious student of history would note that the alliances, the national goals and military plans, and the political, diplomatic, and military decisions of the major European powers during the preceding years and months were the true causes of the erosion in global strategic stability. By extension, if decisions to go to war are set on a hair-trigger, the reasons for the precarious circumstances extend far beyond whether a communications or imaging platform is destroyed in space rather than on earth. Those who believe we run extraordinary risks stemming from clouded perceptions and misunderstandings in an age of computerized space warfare might want to take a look at some real-world situations of high volatility in which potentially provocative actions took place. Take, for example, the tragedies involving the USS Stark and USS Vincennes. In May 1987, an Iraqi F-1 Mirage jet fighter attacked the Stark on patrol to protect neutral shipping in the Persian Gulf, killing 37 sailors. Iraq, a "near-ally" of the United States at the time, had never before attacked a U.S. ship. Analysts concluded that misperception and faulty assumptions led to Iraq's errant attack. The memory of the USS Stark no doubt preoccupied the crew of the USS Vincennes, which little over a year later, in July 1988, was also on patrol in hostile Persian Gulf waters. The Vincennes crew was involved in a "half war" against Iran, and at the time was fending off surface attacks from small Iranian gunboats. Operating sophisticated technical systems under high stress and rules of engagement that allowed for anticipatory self-defense, the advanced Aegis cruiser fired anti-aircraft missiles at what it believed to be an Iranian military aircraft set on an attack course. The aircraft turned out to be a commercial Iran Air flight, and 290 people perished owing to mistakes in identification and communications. To these examples we may add a long list of tactical blunders growing Out of ambiguous circumstances and faulty intelligence, including the U.S. bombing in 1999 of the Chinese Embassy in Belgrade during Kosovo operations. Yet though these tragic actions occurred in near-war or tinderbox situations, they did not escalate or exacerbate local instability. The world also survived U.S.-Soviet "near encounters" during the 1948 Berlin crisis, the 1961 Cuban missile crisis, and the 1967 and 1973 Arab-Israeli wars. Guarded diplomacy won the day in all cases. Why would disputes affecting space be any different? In other words, it is not at all self-evident that a sudden loss of a communications satellite, for example, would precipitate a wider-scale war or make warfare termination impossible. In the context of U.S.-Russian relations, communications systems to command authorities and forces are redundant. Urgent communications may be routed through land lines or the airwaves. Other means are also available to perform special reconnaissance missions for monitoring a crisis or compliance with an armistice. While improvements are needed, our ability to know what transpires in space is growing -- so we are not always in the dark. The burden is on the critics, therefore, to present convincing analogical evidence to support the notion that, in wartime or peacetime, attempts by the United States to control space or exploit orbits for defensive or offensive purposes would increase significantly the chances for crisis instability or nuclear war. In Washington and other capitals, the historical pattern is to use every available means to clarify perceptions and to consider decisions that might lead to war or escalation with care, not dispatch.

## A2: Accidental Launch 1/2

### Multiple historical examples prove miscalculation or single strikes won’t escalate

Steven Lambakis, senior defense analyst at the National Institute for Public Policy, 2001. Policy Review 105, “Space Weapons: Refuting the Critics,” http://www.hoover.org/publications/policy-review/article/6612

Those who believe we run extraordinary risks stemming from clouded perceptions and misunderstandings in an age of computerized space warfare might want to take a look at some real-world situations of high volatility in which potentially provocative actions took place. Take, for example, the tragedies involving the USS Stark and USS Vincennes. In May 1987, an Iraqi F-1 Mirage jet fighter attacked the Stark on patrol to protect neutral shipping in the Persian Gulf, killing 37 sailors. Iraq, a "near-ally" of the United States at the time, had never before attacked a U.S. ship. Analysts concluded that misperception and faulty assumptions led to Iraq’s errant attack. The memory of the USS Stark no doubt preoccupied the crew of the USS Vincennes, which little over a year later, in July 1988, was also on patrol in hostile Persian Gulf waters. The Vincennes crew was involved in a "half war" against Iran, and at the time was fending off surface attacks from small Iranian gunboats. Operating sophisticated technical systems under high stress and rules of engagement that allowed for anticipatory self-defense, the advanced Aegis cruiser fired anti-aircraft missiles at what it believed to be an Iranian military aircraft set on an attack course. The aircraft turned out to be a commercial Iran Air flight, and 290 people perished owing to mistakes in identification and communications. To these examples we may add a long list of tactical blunders growing out of ambiguous circumstances and faulty intelligence, including the U.S. bombing in 1999 of the Chinese Embassy in Belgrade during Kosovo operations. Yet though these tragic actions occurred in near-war or tinderbox situations, they did not escalate or exacerbate local instability. The world also survived U.S.-Soviet "near encounters" during the 1948 Berlin crisis, the 1961 Cuban missile crisis, and the 1967 and 1973 Arab-Israeli wars. Guarded diplomacy won the day in all cases. Why would disputes affecting space be any different?

A2: Accidental Launch 2/2

### The militarization of space is inevitable – unchecked global militarization more likely to cause miscalculation

Ross 2009 (Sherwood Ross is a reporter for the Chicago Daily News and Rueters, “Space Race Hikes Risk of Nuclear War” accessed 7/4/10 <http://www.opednews.com/articles/Space-Race-Hikes-Risk-of-N-by-Sherwood-Ross-090330-417.html> aes)

An unchecked race to militarize space is underway that is “increasing the risk of an accidental nuclear war while shortening the time for sanity and diplomacy to come into play to halt crises,” an authority on space warfare says. By 2025, the space capabilities of the leading space powers---the U.S., Russia, India and China---will be roughly equal “due to information sharing in a globalized economy,” says noted space researcher Matt Hoey in an exclusive interview. Hoey is international military space technology forecaster who provides analysis on issues related to technology proliferation and arms control. He is also a former senior research associate at the Institute for Defense and Disarmament Studies and has contributed to publications such as the Bulletin of Atomic Scientists and the Space Review. Through their military and commercial research facilities, the world’s military powers are pursuing development of a reusable, unmanned, hypersonic, space-strike delivery platform that “would permit rapid precision strikes worldwide in 120 minutes or less,” Hoey said. The strike platform could loiter in near-space or in low earth orbit and assault terrestrial targets at incredible speed “with a nuclear or conventional payload and then return to any base in the world on demand,” he explained. While “there will not be a dedicated ‘space war’ in our lifetimes or our children’s,” Hoey said, “we are likely to witness acts of space warfare being committed…in concert with other theatres of combat” on land, sea, and air and cyber space.” Hoey said his research analysis suggests, “Back and forth escalation regarding military space capabilities would fuel each nation’s respective space industries as would commercial space races driven by national pride.” “If these systems are deployed in space we will be tipping the nuclear balance between nations that has ensured the peace for decades,” Hoey continued. “The military space race will serve the defense industry much like the cold war and this is already being witnessed in relation to missile defense systems.” Hoey pointed out the arms control community “is still trying to put the nuclear genie from decades ago back in the bottle” and adds “once this new genie(space war) is out it is not going back in anytime soon, either.” The five treaties governing space “are highly outdated,” Hoey said, notably the milestone “Outer Space Treaty” of 1967. Theoretically, the U.S. is also bound by The National Aeronautics and Space Act of 1958 that declares our “activities in space should be devoted to peaceful purposes for the benefit of all mankind.” (Rep. Dennis Kucinich(D-Ohio), in introducing a bill to ban the weaponization of space, charged the Bush administration with breaking with that policy by “putting weapons in outer space to give the U.S. the power to control the world.” Kucinich charged “the Air Force is seeking permission to put both offensive and defensive weapons in space.”) Hoey said the research community is expecting space warfare systems to come from the Defense Advanced Research Projects Agency(DARPA) and the Air Force Research Laboratories (AFRL). But instead of doing straight military R&D in-house, the Pentagon is funding civilian research that has dual-purpose use capabilities---civilian applications as well as military. Because military space race technologies are the same as those needed to explore the heavens, service the international space station and defend against threats from near earth objects, the civilian-military partnerships “present the most challenging dilemma for the arms control community,” Hoey said. That’s because arms control proponents cannot object to their military applications without also opposing “technologies that benefit [hu]mankind.” And he warned this will continue to be the case as long as existing treaties fail to differentiate between commercial and military space technology.

## A2: Debris

### Debris fears are overblown

Reed Albergotti, journalist, “Astronaut Sally Ride Worries that Space-Based Military Ops Will Crease “Space Junk”,” POPULAR SCIENCE, September 2002, <http://web.archive.org/web/20020816200749/http://www.popsci.com/popsci/aviation/article/0,12543,334588,00.html>

Others insist the concerns about space junk are overblown. "The folks making the debris argument are just making a lot of noise—it's just meaningless and senseless," says Barry Venible, a spokesman for the North American Aerospace Defense Command and U.S. Space Command. Current national space policy, he says, "specifically prohibits the development, acquisition, and deployment of space force application systems." That policy doesn't prohibit the military from testing such weapons, however, should circumstances force a shift in U.S. space policy. "We get paid to think about how we're going to win the next war," says Venible. "That's what we're doing with space systems."

### Space weapons will shoot their targets into the atmosphere- empirically eliminates 100% of debris

Dolman, Associate Professor of Comparative Military Studies @ US Air Force School of Advanced Air and Space Studies, 2006 (Everett, April 21st, Personal Correspondence with Damien Debater Clinton-Ehrlich Quinn, posted at: <http://www.angelfire.com/planet/spaceforce/email/>)

First, hit-to-kill (kinetic) weapons are the first option for taking LEO, as all the technology is proven and available. Space-to-space ASAT is no harder than maneuvering a microsatellite into the path of an orbiting target, and, if the trajectory is earthward, the debris will quickly fall into the atmosphere and burn up (this is the tactic the Russians used for their twenty ASAT tests, and no debris or environmental damage has been noted). A laser in orbit is actually much more viable as an ASAT than as a ground or air targeting weapon. Since there is no atmospheric attenuation or perturbation, very small energy requirements are needed. Moreover, as the satellite targeted is probably unaware of the low-energy burn until its systems begin to shut down, dwell time on the target can be significant. So small power lasers that might have minimal effects on a missile or spacecraft that used countermeasures (a mirrored surface or a spinning trajectory, for example, would make power requirements much higher) would be extremely useful space-to-space.

## Brilliant Pebbles Good

### Brilliant pebbles proven workable by moon test

Miller 2004 (John J., “The High Ground,” National Review, May 24, LN)

The technical aspects of space may not be as difficult as Kadish suggests. In the first Bush administration, the Pentagon drew up plans for hundreds of mini-satellites, sometimes called "Brilliant Pebbles." During an ICBM strike, they would shift their orbits into enemy flight paths. The ensuing collision would destroy both the interceptors and their targets.Best of all, say advocates like Cooper, the technology behind Brilliant Pebbles was proven during NASA's Clementine mission to the moon several years ago. The system would not require starting from scratch.

## Space-based Lasers Good

### SBL will be able to protect key U.S. Satellites

John N. Hostettler, Vice Chair, Special Oversight Panel on Terrorism, House Armed Services Committee, “Directed Energy and the Future of Security,” Lexington Institute Capitol Hill Forum on Directed Energy, July 11, 2002, <http://web.archive.org/web/20020811112913/http://www.lexingtoninstitute.org/defense/energyforum_hostettler.htm>

The future of Directed Energy in space will not only serve as a military “force-enhancer” for the warfighter, but also a “force-applicator.” By military force-enhancer, I mean of course that we’ll be able to use DE weapons in space to protect assets such as the GPS–used for unit navigation, enemy tracking, and precision-guided munitions. It could protect other vital communications systems, and our intelligence, surveillance and reconnaissance platforms. It also would protect the free flow of our civilian communications and commercial activities – especially important as the military and intelligence communities become more reliant on commercial space assets. Perhaps equally important, space-based directed energy platforms might be used in applications of force with truly global reach.

### Space lasers nearing completion, enabling fast destruction of targets

Preston et al 2002 (Bob, Dana J. Johnson, Sean Edwards, Michael Miller, & Calvin Shipbaugh, Analysts at Rand, Space Weapons Earth Wars, Santa Monica: RAND, 2002, www.rand.org/publications/MR/MR1209/, acc. 8-8-05)

While both generating and directing destructive levels of energy may be challenging, the technology for directing energy will have the greatest leverage for basing the weapons in space. The critical technologies are large, deployable optics for lasers and large, deployable antennas for radio frequency weapons. The technologies for both will mature and diffuse at some rate for science and surveillance— independently of weapons development.

the technologies do mature, space-based directed-energy weapons could have the potential to engage targets from the surface of the earth outwards, depending on the form of the directed-energy selected. Their targets will generally have to be relatively soft, such as aircraft and missiles (not armored vehicles), but may be very swift. The weapons’ effects may range from temporary interference to permanent destruction and should be available within seconds of release authority. Even so, the cumulative effects available against multiple targets in any window of time will be bounded by the finite time needed for the desired effect against an individual target.

## Microsatellites Good

### Microsatellites effectively blind hostile ASATs, protecting U.S. Assets

Lambeth 2003 (Benjamin S., Mastering the Ultimate High Ground: Next Steps in the Military Uses of Space, Santa Monica: The Rand Corporation, 2003, www.rand.org/publications/MR/MR1649/, acc. 8-7-05)

Beyond these nonintrusive flexible negation alternatives, a more direct and aggressive approach being explored for disrupting enemy on-orbit assets might feature the use of “micropaint” satellites, which could rendezvous with those assets and fire paintball-like material at them to blind them. Yet another option might entail small, highly maneuverable microsatellites that could rendezvous with enemy satellites and negate them by blocking their field of view, spot-jamming their transmissions, or burning out their wiring with lasers. Once developed, such space control activities will be dominated by both passive and active space defense capabilities, which will be natural extensions of today’s multisensory tracking systems, antisatellite weapons, and embryonic decoy and deception technologies and concepts.

### Microsattelites provide efficient reservicing of space defense components

Rumsfeld Commission 2001 (“Chapter 3,” Report of the Commission to Assess United States National Security Space Management and Organization, January 11, www.fas.org/spp/military/commission/report.htm, acc 8-5-05)

Along with assured access to space, the U.S. needs to develop better ways to conduct operations once in space. New approaches to on-orbit propulsion can improve spacecraft maneuverability and safety, and on-orbit servicing can extend the life of space systems and upgrade their capabilities after launch. Autonomous, reusable orbit transfer systems can provide greater maneuverability in and between different orbits. In addition, the Defense Advanced Research Projects Agency, the Air Force and NASA are studying robotic microsatellites that can provide spacecraft servicing. When coupled with spacecraft that allow for modular component replacement while on orbit, these systems could provide significant life cycle cost savings, and would enable spacecraft and interchangeable payloads to be upgraded.

## Microwave Weapons Good

### Tests show that microwave weapons are effective at destroying offensive weaponry

Fulghum 2005 (David A., “Microwave Weapons Emerge,” Aviation Week & Space Technology, June 13, LN)

In a series of closely guarded tests, Raytheon researchers have shot down a variety of shoulder-fired antiaircraft missiles--the nightmare of airline operators--with pulses of microwave energy at a distance of several miles. While the actual ranges involved and the test site are still withheld, it is known that the prototype high-power microwave (HPM) weapon, with its energy focused within 1 deg., sends an electrical pulse through the enemy missile's metal parts and into its computers and guidance system. For a split second, that spike is strong enough to damage electrical components and scramble computer memories so badly that the missile flies off course and ignores the aircraft it has targeted (AW&ST May 30, p. 24).

### Microwave weapons are necessary for effective infowar and military operations

Fulghum 2004 (David, “Network Wars,” Aviation Week & Space Technology, October 25, LN)

But for the present, some of the high-tech arsenal being designed to attack any foe's network-centric capabilities involves key technologies that operate most effectively at low altitude. They are computer network attack devices and high-power microwave or radio frequency weapons. Both are now considered critical to successful information and electronic warfare (IW/EW). In addition, to help get these UAVs and missiles through the enemy's toughest air defenses, the U.S. is refining sophisticated jamming and spoofing aids and developing visual stealth technologies to avoid optical detection. The combination of electronic and information warfare devices and the aircraft or missiles to deliver them will be key both to feeding U.S. network-centric operations with the latest intelligence and disabling or confusing those of any foe. The following are some of the tools the U.S. plans to use: \*A foe's integrated air defenses can be confused by new airborne electronic warfare systems that can capture the emissions from each enemy radar and then manipulate them to create false target speeds, positions and types. The twist is that the newest EW system then returns altered signals to each radar in the enemy network. The manipulated returns are so different that the integrated air defense system can't correlate or match them to one another so they can't be effectively targeted. \*High-power microwave weapons--now being sized for cruise missiles, UAVs and unmanned combat aircraft--can disable electronic equipment and scramble computer memories, key capabilities for targets such as facilities for manufacturing and storing nuclear, biological and chemical weapons.

# \*\*\*Space Weaponization Bad\*\*\*

## Space Weaponization Bad – Arms Race 1/3

### Weaponization bad --- causes planet-ending conflict that outweighs nuclear war

Mitchell et al., Associate Professor of Communication and Director of Debate at the University of Pittsburgh, Ayotte and Helwich, Teaching Fellows in the Department of Communication at the University of Pittsburgh, 2001 (Dr. Gordon R., Kevin J., David Cram, ISIS Briefing on Ballistic Missile Defence, "Missile Defence: Trans-Atlantic Diplomacy at a Crossroads", No. 6 July, http://www.isisuk.demon.co.uk/0811/isis/uk/bmd/no6.html)

A buildup of space weapons might begin with noble intentions of 'peace through strength' deterrence, but this rationale glosses over the tendency that '… the presence of space weapons…will result in the increased likelihood of their use'.33 This drift toward usage is strengthened by a strategic fact elucidated by Frank Barnaby: when it comes to arming the heavens, 'anti-ballistic missiles and anti-satellite warfare technologies go hand-in-hand'.34 The interlocking nature of offense and defense in military space technology stems from the inherent 'dual capability' of spaceborne weapon components. As Marc Vidricaire, Delegation of Canada to the UN Conference on Disarmament, explains: 'If you want to intercept something in space, you could use the same capability to target something on land'. 35 To the extent that ballistic missile interceptors based in space can knock out enemy missiles in mid-flight, such interceptors can also be used as orbiting 'Death Stars', capable of sending munitions hurtling through the Earth's atmosphere. The dizzying speed of space warfare would introduce intense 'use or lose' pressure into strategic calculations, with the spectre of split-second attacks creating incentives to rig orbiting Death Stars with automated 'hair trigger' devices. In theory, this automation would enhance survivability of vulnerable space weapon platforms. However, by taking the decision to commit violence out of human hands and endowing computers with authority to make war, military planners could sow insidious seeds of accidental conflict. Yale sociologist Charles Perrow has analyzed 'complexly interactive, tightly coupled' industrial systems such as space weapons, which have many sophisticated components that all depend on each other's flawless performance. According to Perrow, this interlocking complexity makes it impossible to foresee all the different ways such systems could fail. As Perrow explains, '[t]he odd term "normal accident" is meant to signal that, given the system characteristics, multiple and unexpected interactions of failures are inevitable'.36 Deployment of space weapons with pre-delegated authority to fire death rays or unleash killer projectiles would likely make war itself inevitable, given the susceptibility of such systems to 'normal accidents'. It is chilling to contemplate the possible effects of a space war. According to retired Lt. Col. Robert M. Bowman, 'even a tiny projectile reentering from space strikes the earth with such high velocity that it can do enormous damage — even more than would be done by a nuclear weapon of the same size!'. 37 In the same Star Wars technology touted as a quintessential tool of peace, defence analyst David Langford sees one of the most destabilizing offensive weapons ever conceived: 'One imagines dead cities of microwave-grilled people'.38 Given this unique potential for destruction, it is not hard to imagine that any nation subjected to space weapon attack would retaliate with maximum force, including use of nuclear, biological, and/or chemical weapons. An accidental war sparked by a computer glitch in space could plunge the world into the most destructive military conflict ever seen.

Space Weaponization Bad – Arms Race 2/3

### Space weaponization bad: (1) Russian hair trigger; (2) China/India/Pakistan nuclear instability; (3) alienates allies; (4) undermines global nonproliferation

Michael Krepon, Stimson Center, “Weapons in the Heavens: A Radical and Reckless Option,” ARMS CONTROL TODAY, November 2004, npg, ASP.

Weaponizing space would poison relations with China and Russia, whose help is essential to stop and reverse proliferation. ASAT weapon tests and deployments would surely reinforce Russia’s hair-trigger nuclear posture, and China would likely feel compelled to alter its relaxed nuclear posture, which would then have negative repercussions on India and Pakistan. The Bush administration’s plans would also further alienate America’s friends and allies, which, with the possible exception of Israel, strongly oppose the weaponization of space. The fabric of international controls over weapons of mass destruction, which is being severely challenged by Iran’s and North Korea’s nuclear ambitions, could rip apart if the Bush administration’s interest in testing space and nuclear weapons is realized.

Space Weaponization Bad – Arms Race 3/3

### Weaponization bad: ensures an arms race, creates debris that hurts economy, erodes u.s. Leadership

Tariq Malik, journalist, “Think Tank Warns Against Space Weapons Systems,” SPACE.COM, January 22, 2004, [www.space.com/news/weaponized\_space\_040122.html](http://www.space.com/news/weaponized_space_040122.html)

Satellites orbiting high above Earth are a crucial resource for the U.S. military in terms of communications, reconnaissance and global positioning. But a new report warns that too much of a space military presence, mainly the use of space-based weapons systems, may inevitably cause more problems than they're meant to solve. Should the U.S. military "weaponize" space, the report states, it will most likely be affect global commerce, weaken American ties with other nations and eventually lead to space weapons proliferation as other groups develop countermeasures or their own space weapons systems. The study, called Space Assurance or Space Domination? The Case Against Weaponizing Space , was released by the Henry L. Stimson Center, a Washington D.C.-based nonprofit, nonpartisan think tank aimed at enhancing international peace and security. "When you weaponize space, you invite company," said Michael Krepon, who wrote the report and served as the founding president of the Stimson Center. "When we go first, others will come second. That is an absolute certainty." Once killer satellites start destroying one another above Earth, they will cause space debris that could harm benign satellites used by civilian agencies and companies around the world, which in turn affects global economy, according to the Stimson report. If other nations or groups choose not to put their own space weapons in orbit, they could develop ground-based countermeasures like electronic jamming or spoofing devices to confuse U.S. machines. A ballistic missile could disable satellites in low-earth orbit by detonating a nuclear device, subjecting any ground troops relying intelligence from those satellites to possible attack, the study noted. Finally, the report added, space weapons systems could hurt U.S. diplomatic ties on the ground, with other nations constantly mindful of its space forces in Earth orbit. Krepon said there is a distinction between the current militarization of space -- which uses satellites to support forces on the ground -- and weaponization, defined in the study as the flight-testing and deployment of any system to specifically as systems used to "fight a war in space or from space, or military capabilities on the ground designed to kill satellites in space." The U.S. military has had an established foothold in space for decades and its application in wartime was visually apparent during the recent war, and current occupation, in Iraq. Military forces there from the U.S. and other nations, rely heavily on satellites on everything from weather forecasts to signal detection and photointelligence. Krepon said the United States Air Force (USAF), in particular, is creeping close to the threshold of space weaponization with its XSS satellite program. The XSS program, short for Experimental Satellite System, consists of a series of microsatellites smaller than 100 kilograms. One such satellite, XSS-10, was successfully launched in 2003. Weighing about 62 pounds (28 kilograms), it demonstrated the ability to be activated soon after launch, maneuver close to its spent rocket and broadcast live video of the booster to officials on the ground. A follow-up mission, XSS-11, was set to conduct a similar mission -- but over a longer period of time -- sometime this year. "But a maneuverable satellite like that could also be used to disable, stun, dazzle or destroy an object," Krepon told SPACE.com. Even if the U.S. military moves forward with a non-destructive system, one that disables enemy satellites rather than obliterating them, the foreign space forces that follow won't be so polite about the means they use to destroy spacecraft, he added. The push to develop military systems in space in the current administration was boosted in 2001, when a government-assigned commission reported its findings on the United States' national security capabilities in space. Commissioners, then, reported a great need to protect American space systems, particularly since the government's growing dependence on satellites could make it an attractive target for enemies. "Many foreign nations and non-state entities are pursuing space-related activities," reported the study, which was headed then by Donald H. Rumsfeld, who is now the Secretary of Defense. "If the U.S. is to avoid a 'Space Pearl Harbor' it needs to take seriously the possibility of an attack on U.S. space systems." If space warfare becomes a reality, it should only be implemented as a last resort, according to the Stimson study. "We are in a position to deter the first use of space warfare because of our predominant military power," Krepon said, adding that the U.S. is now in a position to cause grievous damage to any other state that engages in space warfare. "The prospect of deterrence can be quite meaningful in space."

## Space Weaponization Bad – China

### Plan causes a Chinese response – deterrent, obstructs Taiwan invasion, and develops Japanese alliance

Glaser and Fetter 01 (Charles L., Professor in the Irving B. Harris Graduate School of Public Policy Studies at the University of Chicago, Richard, Professor in the School of Public Affairs at the University of Maryland, College Park., National Missile Defense and the Future of US. Nuclear Weapons Policy, International Security, Vol. 26, No. 1 (Summer, 2001), pp. 40-92, <http://www.jstor.org/stable/3092078>)

China, like Russia, has strongly opposed U.S. deployment of limited NMD.98 U.S. options for reducing China's concerns are different and less extensive than for reducing Russian concerns, because China's nuclear force is very small. China currently deploys about 20 single-warhead ICBMs, which are unfueled and not mated with warheads. Unless U.S. NMD is a surface-based boost-phase system, China would fear that 100 to 250 NMD interceptors would nullify its modest nuclear capability. Given the current state of U.S.-China relations, U.S. claims that its NMD is oriented only against rogue states will do little to reassure the leadership in Beijing. China will likely conclude that it requires a nuclear force that can overwhelm U.S. NMD in a retaliatory strike and react by building a larger force than it would have if the United States had not deployed NMD, deploying countermeasures and possibly MIRVing its missiles.99 In addition, and more worrisome, U.S. NMD would be likely to generate a negative shift in China's assessments of U.S. motives, because it would be impossible for the United States to demonstrate that its NMD was directed against rogue states and not China. The Clinton administration plan to deploy 100 NMD inceptors before 2010, and possibly 250 by 2015, would pose a threat to Chinese retaliatory capabilities, even if China increases its nuclear force at the rate currently estimated to be feasible, and the more ambitious plan favored by the Bush administration promises to be still more threatening. If missile defense of this size were required to defend against projected rogue forces, then the motives driving U.S. NMD would appear ambiguous to China. Given that a state that wanted to challenge China would be more likely to build NMD than one that did not, China would increase its estimate of the probability that the United States harbors malign intentions. If, however, U.S. NMD were clearly larger than required to defend against rogue forces, which seems likely given the Bush administration's enthusiasm for NMD, then China would conclude that U.S. intentions were clearly malign. Chinese leaders would not have to stretch their imaginations to see ways that the United States could use NMD to challenge China's key security concerns. Most obviously, an effective NMD could significantly reduce China's ability to deter American intervention in support of Taiwan, which China considers a renegade province. Chinese leaders will be able to cite U.S. supporters of NMD that have made this link explicit.100 In addition, NMD is directly linked to hot-button regional issues through its interaction with TMD-which China sees as threatening its ability to prevent Taiwan's move toward independence and as playing a significant role in the evolution of America's military relationship with Japan-which further increases the probability that China would impute U.S. hostility.

### US Space militarization makes war with China inevitable --- the status quo’s the only peaceful option

William C. Martel, Professor of National Security Affairs @ the Naval War College in Rhode Island and Toshi Yoshihara, Doctoral Candidate @ the Fletcher School of Law and Diplomacy @ Tufts University, Research Fellow @ the Institute for Foreign Policy Analysis in Massachusetts, “Averting a Sino-U.S. Space Race”, The Washington Quarterly, Autumn 2003, p. L/N

Strategists in the United States and in China are clearly monitoring the other's developments in space. How the United States judges Chinese intentions and capabilities will determine Washington's response; of course, the reverse is equally true. As each side eyes the other, the potential for mutual misperceptions can have serious and destabilizing consequences in the long term. In particular, both countries' exaggerated views of each other could lead unnecessarily to competitive action-reaction cycles. What exactly does such an action-reaction cycle mean? What would a bilateral space race look like? Hypothetically, in the next 10 years, some critical sectors of China's economy and military could become increasingly vulnerable to disruptions in space. During this same period, Sino-U.S. relations may not improve appreciably, and the Taiwan question could remain unresolved. If Washington and Beijing could increasingly hold each other's space infrastructure hostage by threatening to use military options in times of crisis, then potentially risky paths to preemption could emerge in the policy planning processes in both capitals. In preparing for a major contingency in the Taiwan Strait, both the United States and China might be compelled to plan for a disabling, blinding attack on the other's space systems before the onset of hostilities. The most troubling dimension to this scenario is that some elements of preemption (already evident in U.S. global doctrine) could become a permanent feature of U.S. and Chinese strategies in space. Indeed, Chinese strategic writings today suggest that the leadership in Beijing believes that preemption is the rational way to prevent future U.S. military intervention. If leaders in Beijing and Washington were to position themselves to preempt each other, then the two sides would enter an era of mutual hostility, one that might include destabilizing, hair-trigger defense postures in space where both sides stand ready to launch a first strike on a moment's notice. One scenario involves the use of weapons, such as lasers or jammers, which seek to blind sensors on imaging satellites or disable satellites that provide warning of missile launches. Imagine, for example, Washington's reaction if China disabled U.S. missile warning satellites or vice versa. In that case, Sino-U.S. relations would be highly vulnerable to the misinterpretations and miscalculations that could lead to a conflict in space. Although attacks against space assets would likely be a precursor or a complement to a broader crisis or conflict, and although conflicts in the space theater may not generate many casualties or massive physical destruction, the economic costs of conflict in space alone for both sides, and for the international community, would be extraordinary given that many states depend on satellites for their economic well-being.

### Unrestricted Chinese-US space arms race will result in nuclear war

Carroll, 3 (James Carroll, former Shorenstein Fellow at the Kennedy School of Gov't at Harvard U, Distinguished Scholar-in-Residence at Suffolk U, "Bush's battle to dominate in space," October 28, 2003, Boston Globe, <http://www.mail-archive.com/ctrl@listserv.aol.com/msg108822.html>)

Two weeks ago China put a man in space, a signal of China's arrival -and of the arrival of this grave question. Beijing has invested heavily in commercial development of space and will become a significant economic competitor in that sphere. But such peaceful competition presumes a framework of stability, and it is inconceivable that China can pursue a mainly nonmilitary space program while feeling vulnerable to American military dominance. China has constructed a minimal deterrent force with a few dozen nuclear-armed ICBMs, but US "global engagement" based on a missile defense, will quickly undercut the deterrence value of such a force. The Chinese nuclear arsenal will have to be hugely expanded. Meanwhile, America's "high frontier" weapons capacity will put Chinese commercial space investments at risk. No nation with the ability to alter it would tolerate such imbalance, and over the coming decades there is no doubt that China will have that capacity. Washington's refusal to negotiate rules while seeking permanent dominance and asserting the right of preemption is forcing China into an arms race it does not want. Here, potentially, is the beginning of a next cold war, with a nightmare repeat of open-ended nuclear escalation.

## 1NC Accidental Launch

### Turn – Hair trigger stance – Weaponization causes it and it results in extinction

Mitchell, 01 – Associate Professor of Communication and Director of Debate at the University of Pittsburgh

(Dr. Gordon, ISIS Briefing on Ballistic Missile Defence, “Missile Defence: Trans-Atlantic Diplomacy at a Crossroads”, No. 6 July, <http://www.isisuk.demon.co.uk/0811/isis/uk/bmd/no6.html>)

A buildup of space weapons might begin with noble intentions of 'peace through strength' deterrence, but this rationale glosses over the tendency that '… the presence of space weapons…will result in the increased likelihood of their use'.33 This drift toward usage is strengthened by a strategic fact elucidated by Frank Barnaby: when it comes to arming the heavens, 'anti-ballistic missiles and anti-satellite warfare technologies go hand-in-hand'.34 The interlocking nature of offense and defense in military space technology stems from the inherent 'dual capability' of spaceborne weapon components. As Marc Vidricaire, Delegation of Canada to the UN Conference on Disarmament, explains: 'If you want to intercept something in space, you could use the same capability to target something on land'. 35 To the extent that ballistic missile interceptors based in space can knock out enemy missiles in mid-flight, such interceptors can also be used as orbiting 'Death Stars', capable of sending munitions hurtling through the Earth's atmosphere. The dizzying speed of space warfare would introduce intense 'use or lose' pressure into strategic calculations, with the spectre of split-second attacks creating incentives to rig orbiting Death Stars with automated 'hair trigger' devices. In theory, this automation would enhance survivability of vulnerable space weapon platforms. However, by taking the decision to commit violence out of human hands and endowing computers with authority to make war, military planners could sow insidious seeds of accidental conflict. Yale sociologist Charles Perrow has analyzed 'complexly interactive, tightly coupled' industrial systems such as space weapons, which have many sophisticated components that all depend on each other's flawless performance. According to Perrow, this interlocking complexity makes it impossible to foresee all the different ways such systems could fail. As Perrow explains, '[t]he odd term "normal accident" is meant to signal that, given the system characteristics, multiple and unexpected interactions of failures are inevitable'.36 Deployment of space weapons with pre-delegated authority to fire death rays or unleash killer projectiles would likely make war itself inevitable, given the susceptibility of such systems to 'normal accidents'. It is chilling to contemplate the possible effects of a space war. According to retired Lt. Col. Robert M. Bowman, 'even a tiny projectile reentering from space strikes the earth with such high velocity that it can do enormous damage — even more than would be done by a nuclear weapon of the same size!'. 37 In the same Star Wars technology touted as a quintessential tool of peace, defence analyst David Langford sees one of the most destabilizing offensive weapons ever conceived: 'One imagines dead cities of microwave-grilled people'.38 Given this unique potential for destruction, it is not hard to imagine that any nation subjected to space weapon attack would retaliate with maximum force, including use of nuclear, biological, and/or chemical weapons. An accidental war sparked by a computer glitch in space could plunge the world into the most destructive military conflict ever seen.

## 1NC Debris 1/2

### Weaponization creates cascading orbiting debris clouds—destroy most satellites, crushing commerce and exploration

Rebecca Johnson, Director, Disarmament and Arms Control Program, Liu Institute for Global Issues, University of British Columbia, “Security Without Weapons in Space: Challenges and Options,” DISARMAMENT FORUM n. 1, 2003, pp. 53-65.

For many technological and political reasons, a high altitude nuclear detonation is unlikely, though in an age of asymmetric warfare, it cannot be completely ruled out. A much more immediate danger to commercial and military assets in space, already arising from careless human actions in the first forty-five years of space activities, comes from space-crowding and orbital debris. LEO is teeming with human generated debris, defined by NASA as ‘any man-made object in orbit about the Earth which no longer serves a useful purpose’. There are some 9,000 objects larger than 10cm and over 100,000 smaller objects. As orbiting debris may be travelling at very high velocities, even tiny fragments can pose a significant risk to satellites or spacecraft, as experienced by US astronaut Sally Ride, when an orbiting fleck of paint gouged the window of the Space Shuttle during her first flight.22 If instead of paint, the projectile had been harder or larger, it could have put the lives of the crew at risk. As noted by Joel Primack, one of the premier experts on the problems of space debris, ‘the weaponization of space would make the debris problem much worse, and even one war in space could encase the entire planet in a shell of whizzing debris that would thereafter make space near the Earth highly hazardous for peaceful as well as military purposes’.23 Such a scenario would cause the Earth to be effectively entombed, jeopardizing the possibility of further space exploration and greatly complicating civilian uses. In addition, Primack speculates that even a small number of ‘hits’ in space could create sufficient debris to cause a cascade of further fragmentation (a kind of chain reaction). This, in turn, could potentially damage the Earth’s environment and, as the Sun’s rays reflect off the dust, cause permanent light pollution, condemning us to a ‘lingering twilight’.24

1NC Debris 2/2

### The debris generated from even one very small war in space cascades --- causes the entombment of the planet and cripples the environment --- destroys the use of space and guarantees extinction through blocking out the sun

Rebecca Johnson, Director of the Disarmament and Arms Control Programme at the Liu Institute for Global Issues, University of British Columbia, 2003, ("Missile defense and the weaponisation of space," ISIS Policy paper on missile defense, January, http://www.isisuk.demon.co.uk/0811/isis/uk/bmd/no11.html)

Space in low earth orbit is teeming with human generated debris, defined by NASA as “any man-made object in orbit about the Earth which no longer serves a useful purpose”. There are some 9,000 objects larger than 10 cm and over 100,000 smaller objects. As orbiting debris may be travelling at very high velocities, even tiny fragments can pose a significant risk to satellites or spacecraft, as experienced by US astronaut Sally Ride, when a tiny, orbiting fleck of paint gouged the window of the space shuttle during her first flight.25 If the fleck of paint had been metal, its impact might have had lethal consequences. As noted by Joel Primack, a physics professor at the University of California and expert on the problems of space debris, “the weaponisation of space would make the debris problem much worse, and even one war in space could encase the entire planet in a shell of whizzing debris that would thereafter make space near the Earth highly hazardous for peaceful as well as military purposes”.26 This would entomb the earth and jeopardise the possibility of further space exploration. In addition, Primack speculates that even a small number of “hits” in space could create sufficient debris to cause a cascade of further fragmentation (a kind of chain reaction). This, in turn, could potentially damage the Earth’s environment and, as the Sun’s rays reflect off the dust, cause permanent light pollution, condemning us to a “lingering twiligh**t”**.27

## A2: Hegemony 1/3

### Weapons can’t solve space – doesn’t protect against high powered ASATs

DeBlois et al 04 (Bruce M., Formerly Adjunct Senior Fellow for Science and Technology at the Council on Foreign Relations, Richard L. Garwin, formerly Senior Fellow for Science and Technology at CFR, R. Scott Kemp, Fulbright Fellow to the European Union and research staff at the Program on Science and Global Security at Princeton University, Jeremy C. Marwell is a Furman Scholar at the New York University School of Law. He was formerly Research Associate for Science and Technology Studies at CFR)

IN SUM: PROTECTING U.S . SATELLITES. Space weapons are generally not good at protecting satellites' capabilities. In those cases where space weapons might play a unique or contributing role-in opposing microsatellite attack and hit-to-kill antisatellite weapons-terrestrial or passive approaches match or exceed their utility. In the case of microsatellites and bodyguards, one might commit to deploying (in the spirit of Jonathan Swift) "smaller still to bite 'em." In such an arms race, the vulnerability inherent in the cost of existing and future U.S. high-capability satellites in low earth orbit outweighs any competitive advantages of superior U.S. space resources (e.g., in building advanced bodyguard microsatellites). Cost, long development cycles, and vulnerability suggest that space weapons are not-except perhaps in the most narrowly defined of circumstances-a satellite defense of first resort. Instead, the United States should develop redundant, terrestrial back-up systems, thereby reducing its dependence on satellites while ensuring the capabilities those satellites provide in a localized theater of conflict. High-power pseudolites on the ground and on UAVs could provide GPS, remote sensing, communications, and other satellite signals in a theater of operations, eliminating most of the benefit to theater adversaries intent upon attacking U.S. satellites. An adversary state or terrorist might still attack a valuable satellite not for military benefit but to damage the reputation of the United States; the solution to this problem seems to lie in the promise of retaliation against a state actor or a state aiding terrorists in such an act.

### Weapons can’t solve cyberwarfare

DeBlois et al 04 (Bruce M., Formerly Adjunct Senior Fellow for Science and Technology at the Council on Foreign Relations, Richard L. Garwin, formerly Senior Fellow for Science and Technology at CFR, R. Scott Kemp, Fulbright Fellow to the European Union and research staff at the Program on Science and Global Security at Princeton University, Jeremy C. Marwell is a Furman Scholar at the New York University School of Law. He was formerly Research Associate for Science and Technology Studies at CFR)

ELECTRONIC WARFARE. Neither would space weapons easily resolve the oft-cited threat of electromagnetic jamming-unsuccessfully employed against U.S. Global Positioning Satellite (GPS) systems in Iraq. In time of war, as demonstrated in Iraq, ground- or air-launched munitions (in some cases guided by the enemy jammer's own signals) can be a direct and effective countermeasure to ground-based jamming.24 In the face of more persistent jamming, ground- or air-deployed pseudosatellites, so-called pseudolites, could boost GPS and other satellite signals in a local area. For example, an unmanned aerial vehicle transmitting GPS signals from an altitude of 20 kilometers (60,000 feet) would provide 10,000 times the received signal strength on Earth as a GPS satellite with equivalent transmission energy. Such augmentation would reduce by a factor of 100 the effective radius of a GPS jammer-or, conversely, increase by a factor of 10,000 the power required to jam the original area, a significant improvement insofar as robustness is concerned. Furthermore, a GPS transmitter on an unmanned aerial vehicle could radiate ten times the power of a GPS satellite, rendering hostile jamming efforts more difficult by a further factor of 10. Neither "hacking" (unauthorized intrusion into satellite control networks), "spoofing" (fake instructions to a satellite), nor ground-based jamming of command links could be significantly mitigated by space weapons. A space mine closely accompanying a U.S. satellite could easily jam its command link. Destructive attack on the little jammer could readily provoke an instantaneous and automatic destruction of the jammed satellite, limiting the utility of such a protective space weapon once the space mine was in place.

A2: Hegemony 2/3

### U.S. control of space guts hegemony and risks nuclear escalation

Bruce M. DeBlois, Council on Foreign Relations, “The Advent of Space Weapons,” ASTROPOLITICS v. 1 n. 1, Spring 2003, p. 43-45, pp. 29-53.

The migration of weapons to space is likely to create more military problems for the host country than it will solve. From a military perspective, the price of localized and global instability coupled with incentives for pre-emption and escalation may well be a weakened military posture. Global instability is the core issue in an international context. One country’s pursuit and deployment of space weapons is destabilizing from the perspective of both foe and friend. Weaponization could prompt adversaries to develop ASAT or space-based weapons. In the extreme case, a peer competitor might engage in an escalatory arms race. Probably a greater threat, however, is dispersed, low-level proliferation. A number of countries are capable of building limited ASAT or rudimentary space weapons, and might choose to do so. The wide proliferation of micro-satellites or other ASAT weapons would threaten all space assets, due to the varying (and perhaps unpredictable) motivations of countries that could obtain them. Those countries capable of posturing space weapons are generally those that have the most assets to lose in a space war. The acquisition of such weapons might well present an irresistible first-strike opportunity for a country unlikely to win in a conventional conflict. Other adversarial states, especially those incapable of building space weapons or achieving parity in conventional forces, might increase their efforts to acquire nuclear, biological or chemical weapons, or pursue other asymmetric activities (e.g. terrorism). Beyond adversarial responses, allies and partners abroad might also react unfavorably. Any unilateral decision to weaponize space might have negative consequences for diplomatic relationships worldwide. The European Union has been a consistent and vocal critic and, as validated by multiple resolutions in the UN regarding the prevention of an arms race in outer space (PAROS), reflects the opinions of the larger international community. In response to proposed US tests of its mid-infrared advanced chemical laser (MIRACL), an official from the European Space Agency commented: ‘The world space community is confused as to the need for the US to develop space weaponry now, and is dismayed that the US is planning to test a high-powered laser against a satellite target’ 31 Although it is unlikely that weapons in space would threaten or sever strong existing diplomatic ties, simple unpopularity might prompt a shift in the international center of gravity. Countries opposing or alienated by one states’ space policy might gravitate to other alignments, possibly creating an international coalition to oppose the space-weaponizing country on these and other issues within international organizations such as the UN or the World Trade Organization (WTO). A decision to posture weapons in space might also diminish the ability of the space-weaponizing country to assemble international coalitions. In the case of the United States, such international political clout has been crucially [44] important to the military, political, judicial and economic conduct of the war on terrorism. These forms of diplomatic influence might be more important than hard power in the maintenance of global stability in the twenty-first century. 32 The simple unilateral posturing of space weapons creates global instability in the form of encouraging adversaries to respond symmetrically or asymmetrically, heightening tensions, while at the same time crippling alliances. In this less stable global environment, there is also the prospect of space weapons causing less stable regional environments. Integrating space weapons into military operations could have unexpected consequences for the progression of conflict situations, prompting significant regional instability. In most war games that include space assets, commanders discover that preemptively destroying or denying an opponent’s space-based assets with space weapons is appealing, yet often leads to rapid escalation into full-scale war, even triggering nuclear weapons use. One commander commented: ‘[If] I don’t know what’s going on, I have no choice but to hit everything, using everything I have’. 33 That this conclusion surprised strategists suggests that the full implications of space weapons have not yet been fully explored. What is common knowledge, derived from years of experience in futuristic war games, is that permanently based space weapons invite pre- emption and escalation. Local to a specific situation of heightened tensions, the existence of space weapons on one side, the other, or both could be the determining catalyst for escalatory war. In this view, a space-weaponizing country creates both the powder keg of global instability (where it has weakened its own international posture) as well as the spark of regional instability (where it has made itself a target of pre- emption and escalation). Coupled with this very unstable environment, it can also be argued that the same country that weaponizes space may actually damage its own military power. Much of the impetus behind space weaponization stems from perceived military utility, to include national missile defense applications for boost-phase intercept, time-critical targeting, and defense mechanisms for critical space systems. Ironically, the posturing of more military assets in space could actually weaken the military posture of those that seek further military advantage in that domain. Space assets are already a center of gravity (CoG), or at least a critical concentration of military force enhancement assets. To deploy more systems in space in an attempt to protect this CoG only complicates the problem. In spite of the added defenses, the preponderance of threats will remain: denial and deception, electronic warfare (e.g. uplink and downlink jamming), ground facilities disruption, micro-satellites (e.g. space mines), direct ascent interceptors or even a nuclear detonation in space. 34 In addition to limited utility to defeat these threats, the new space-based weapon systems would also be vulnerable to those same threats. There are more logical alternatives, many of which de-emphasize reliance on centralized space assets (e.g. alternatives offering redundancy in space or with terrestrial systems). In a briefing to the George Washington University’s Space Policy Institute Workshop, Dr Karl Mueller of RAND summarized a comprehensive set of responses to foreign space threats that do not require space-based weapons (Figure 4). [45] In short, for the countries that could weaponize space, doing so would only amplify an extant and vulnerable CoG, and they would do so in the midst of many better and less costly alternatives. Perhaps more significant than extending the space CoG (i.e. making it more vulnerable) is exposing it (i.e. revealing it). A move toward space weapons is likely to prompt competitors to build ASAT systems, systems that will also threaten robust communications intelligence gathering systems that, to date, have been protected by an open-skies environment. Additionally, it could be strongly argued that the countries currently able to posture space weapons are those that currently hold military advantages in many other realms, and this begs the question: why would powers that currently hold military advantage in the air, land and sea realms open a new realm in space that could conceivably level the playing field for others?

## A2: Economy 1/2

### Economy – Weaponization destroys commercial satellite infrastructure

Hitchens, 02 – vice president of the Center for Defense Information (Theresa, “Future Security in Space: Commercial, Military, and Arms Control Trade-Offs,” Occasional Paper No. 10, ed: Moltz, <http://cns.miis.edu/pubs/opapers/op10/op10.pdf>)

The competitive and cost challenges the U.S. satellite industry faces could be increased if the United States moved to make space a battlefield. Until now, the threat that commercial satellites could become direct wartime casualties has been negligible. But an aggressive U.S. pursuit of ASATs would likely encourage others to do the same, thus potentially heightening the threat to commercial satellites. This could be costly for industry, especially because current commercial satellites have little protection (electronic hardening, for example, has been considered too expensive). There would be costs for increasing protection, not to mention the likely further skyrocketing of already sky-high insurance costs, and it is not at all clear that the U.S. government would cover all those costs.

### That collapses the economy

Augustine, 05 – retired chairmen and CEO of Lockheed Martin Corp., charied National Academics Committee on Prospering in the Global Economy of the 21st Century (Norman R., Aviation Week and Space Technology, “US Science and Technology is on a Losing Path” Pg. 70 Vo. 163 No. 17 10-31-05, LN)

This transition to a borderless economy provides great opportunities for companies that are prepared to take advantage, as the history of the aerospace industry amply demonstrates. But in any dynamic, technology-intensive industry, leadership can be lost very quickly. Thus, many other industries are now joining the aerospace industry in learning to compete in an uncertain and quickly changing world. Today, candidates for many jobs that currently reside in the U.S. are just a mouse click awa in y Ireland, India, China, Australia and dozens of other countries. At first, manufacturing jobs were the ones most susceptible to moving overseas. I recently traveled to Vietnam, where the hourly cost of low-skilled workers is about 25 cents, less than 1/20th of the U.S. minimum wage. But the competitive disadvantage is not confined to so-called low-end jobs. Eleven qualified engineers can be hired in India for the cost of just one in the U.S. At the same time, other countries are rapidly enlarging their innovation capacity. They are investing in science and technology and encouraging their highly trained citizens who are working abroad to return home. Even more important, these countries are creating the well-funded schools and universities that will produce future scientists and engineers. The U.S. is not competing well in this new world. Other nations will continue to have the advantage of lower wages, so America must take advantage of its strengths. But those strengths are eroding even as other countries are boosting their capacities. Throughout the 20th century, one of America's greatest strengths has been its knowledge-based resources--particularly its science and technology system. But today, that system shows many signs of weakness. This nation's trade balance in high-technology goods swung from a positive flow of $33 billion in 1990 to a negative flow of $24 billion in 2004. In 2003, foreign students earned 59% of the engineering doctorates awarded by U.S. universities. In 2001, U.S. industry spent more on tort litigation and related costs than on research and development. A major factor determining U.S. competitiveness is the quality of the workforce, and the public school system provides the foundation of this asset. But that system is failing specifically in the fields most important to the future: science, engineering and mathematics. In a recent international test involving mathematical understanding, U.S. students finished 27th among the participating nations. In China and Japan, 59% and 66% of undergraduates, respectively, receive their degrees in science and engineering, compared with 32% in the U.S. In the past, the U.S. economy benefited from the availability of financial capital. But today it moves quickly to wherever a competitive advantage exists, as shown by the willingness of companies to move factories to Mexico, Vietnam and China (see p. 18). One of America's most powerful assets is its free enterprise system, with its inherent aggressiveness and discipline in introducing ideas and flushing out obsolescence. But other nations have recognized these virtues and are seeking to emulate the system. The aerospace industry is especially susceptible to these broader economic trends. Without well-educated scientists and engineers, the industry will not be able to compete with well-organized programs in countries with abundant engineering talent. In addition, security issues in the industry highlight its reliance on homegrown talent, as opposed to importing its people from abroad. Troubles in the aerospace industry also could have implications throughout the U.S. economy. In particular, the industry has been especially effective at making use of and producing systems engineers, some of whom eventually move to other industries. If aerospace were to decline, a considerable portion of these valuable individuals would be lost.

A2: Economy 2/2

### Weaponization guts commercial space, which is key to u.s. Military power and world economy\*\*

Charles V. Peña, Senior Defense Policy Analyst and Edward L. Hudgins, former Director of Regulatory Studies, the Cato Institue, “Should the United States “Weaponize” Space? Military and Commercial Implications,” POLICY ANALYSIS n. 427, March 18, 2002, http://www.cato.org/pub\_display.php?pub\_id=1286.

Weaponizing Space Could Harm the Civilian Space Industry It is also important to consider the chain of events that is likely to occur if the United States tries to dominate space militarily and the effects that weaponizing space could have on the commercial space sector. John Newhouse, senior fellow at the Center for Defense Information, states: The [Space Commission] report does not call for but implies a U.S. need to accelerate development of antisatellite weapons, some of them space-based. But deploying such weapons will press other countries to develop and deploy countermeasures. And in any such tit for tat, the United States has the most to lose, since it is far more dependent on satellites for commercial communications and data-gathering operations than any other country. Among the effects could be a sharp rise in the cost of insuring commercial satellites and an outcry from industry.68 In other words, weaponizing space could be costly to an American industry that has great promise to grow and increase its contribution to the U.S. (and world) economy. Ultimately, a vibrant commercial space industry will support and enhance U.S. mili- tary capabilities far better than letting military requirements dominate space policy.

## ASATs Bad

### ASATs are poor weapons—expensive, limited utility, too provocative

Dwayne Day, Associate Edtior, Raumfahrt Concret, “Blunt Arrows: The Limited Utility of ASATs,” THE SPACE REVIEW, June 6, 2005, [www.thespacereview.com/article/388/1](http://www.thespacereview.com/article/388/1)

Many of the conditions that make ASAT weapons not very attractive remain in effect, and some of the conditions that led to their approval in the past do not exist today.

Despite the lack of ASAT arms control, the United States has not demonstrated much enthusiasm or interest in developing an ASAT weapon since the beginning of the space age. This was because ASAT weapons were expensive, limited in military utility, and provocative. In fact, it appears that the decisive factor in developing or not developing an American ASAT has often been the existence of an enemy ASAT capability. Given the high cost and limited utility of the weapon, multiple justifications were needed to make it possible, and the one that tipped the balance in favor of development was the existence of an enemy that needed to be deterred.

The international situation has changed significantly since the Cold War. However, many of the conditions that make ASAT weapons not very attractive remain in effect, and some of the conditions that led to their approval in the past do not exist today.

## Space-based Lasers Bad

### Huge technical hurdles to space planes

HITT ’01 [Jack, Staffwriter, “Battlefield Space,” New York Times, August 5, LN]

The peculiar thing about space warfare is that many of the innovations that sound the most far-fetched -- like illuminating a battlefield at night with light that only one side can see or the deployment of high-power microwave pills -- are actually much closer to existence, technologically, than some items that might seem more logically in line for development. Consider the spaceplane. It would be a tremendous tool for the military, since it could get to any point on the globe in a few hours. But building a manned craft that can quickly glide in and out of low orbits has proved incredibly daunting. Earlier this year, the X-33, NASA's big experiment in flying into space, ended in failure. The image that most people have of "Star Wars"-style combat -- manned spaceplanes engaging in dogfights near the moon -- is very far off. But the use of space for weaponry directed back at earth or guided from space is pretty much at hand.